3.7 WHITE BALANCE (CRT) AND SUB BRIGHT ADJUSTMENT

White Balance

1. Input an all white 480I (15.734KHz) signal into the VIDEO 1 input terminal to perform the white balance (highlight, cut-off) adjustments. The parameters to adjust are in the CXA2150P in service mode.
2. Set the following:

   Picture: Full Mode
   Pro Mode
   Color: Center

3. Adjust white balance in the service mode and set the following data:

2150P-1

No.	Name	Control Function	Avg. Data
05	RDRV	R-DRIVE	Fix: 41
06	GDRV	G-DRIVE	Adjust
07	BDRV	B-DRIVE	Adjust
08	RCUT	R-CUT OFF	Fix: 41
09	GCUT	G-CUT OFF	Adjust
10	BCUT	B-CUT-OFF	Adjust

4. Adjust sub-brightness: Input an all black signal (to IRE 7.5% set up) 480i (15.75KHz) signal into the VIDEO 1 input terminal and adjust the following parameter of the CXA2150P-1.

CXA2150P-1

No.	Name	Control Function	Avg. Data
04	SBRT	SUB-BRIGHT	Adjust

5. Check **INITIAL DATA (Important)**

2150P-1

No.	Name	Control Function	Avg. Data
00	SBOT	SUB-BRT OFFSET	7
12	SBOF	SUB-BRT OFFSET	63

6. Repeat steps 3 to 5.

3-8. RASTER CENTER ADJUSTMENT

1. Input a monoscope signal.
2. Set to NTSC (DRC) mode.
3. Enter service mode and set the following:

CXA2150P-2

No.	Name	Control Function	Avg. Data
06	AGNG	AGING1, AGING2	2

CXA2150D-2

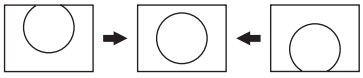
No.	Name	Control Function	Avg. Data
00	HBLK	Blanking enable	0
02	HSIZ	Horiz Size	31

4. Reduce HSIZ to see sides of raster.
5. Adjust H-Center with CXA2150D-2 00.
6. Adjust the best screen position with H-CENT and write data.
7. Restore aging, HSIZ and HBLK to original condition.

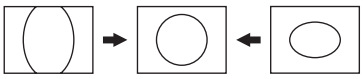
3-9. PICTURE DISTORTION ADJUSTMENTS

CXA2150D-1 and CXA2150D-2

0. VPOS (V-POSITION)



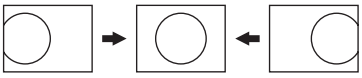
1. VSIZ (V-SIZE)



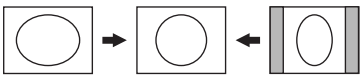
2. VLIN (V-LINE)

3. VSCO (VS-COR)

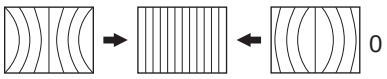
4. HCNT (H-CENTERING)



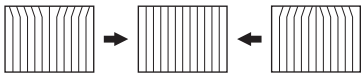
5. HSIZ (H-SIZE)



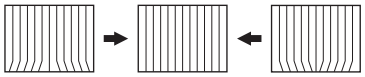
6. PIN (PIN AMP)



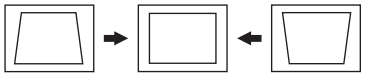
7. UCP (UP COR PIN COR)



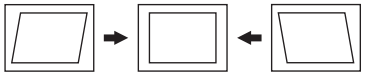
8. LCP (LOW CO PIN COR)



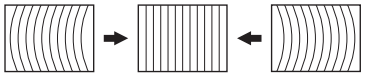
9. PPHA(PIN PHASE)



10. VANG (AFC-ANGLE)

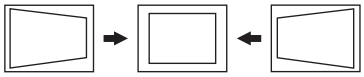


11. VBOW (AFC-BOW)

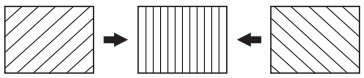


12. VPIN (V-PIN)

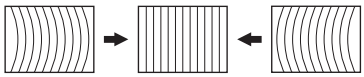
13. HTPZ (H-TRAPEZOID)



14. LANG (L-ANGLE)



15. LBOW (L-BOW)



3-10. NTSC (DRC) Full mode adjustment

1. Face picture tube to east or west direction.
2. Complete VPIN and VCEN adjustment first. (A2150-D1 05 VPIN, A2150-D1 04 VCEN)
3. Input a monoscope and a cross-hatch signal. Adjust picture distortion with the following service parameters to balance the best condition for these two signals.

A2150-D1	00	VPOS
A2150-D1	01	VSIZ
A2150-D1	02	VLIN
A2150-D1	03	VSCO
A2150-D1	04	VCEN
A2150-D1	05	VPIN
A2150-D1	07	HTPZ
A2150-D2	01	HPOS
A2150-D2	02	HSIZ
A2150-D2	03	SLIN
A2150-D2	05	PIN
A2150-D2	06	UCP
A2150-D2	07	LCP
A2150-D2	13	PPHA
A2150-D2	14	VANG
A2150-D2	15	LANG
A2150-D2	16	VBOW
A2150-D2	17	LBOW

Make sure picture size is within specs. Vertical size is 11.8 sq. and Horizontal size is 15.8 sq.

4. Write data into memory then set screen to 1080i Mode.

1080i HD mode adjustment

1. Input a 1080i HD cross-hatch signal and an HD monoscope signal that contains overscan markers.
2. Adjust raster position per section 3-8 only if this procedure was not performed for full mode.
3. Adjust geometry similar to Full DRC mode. Vertical size is 11.8 sq. and Horizontal size is 15.8 sq if monoscope signal is available. Otherwise use Vertical size as 91.5% scan, Horizontal size as 90% scan.
4. Use the following registers to adjust vertical and horizontal parameters:

A2150-D2	01	HPOS
A2150-D1	05	VPIN
A2150-D1	10	ASPT
A2150-D2	11	SCRL

If necessary, touch up geometry using the data registers listed above for Full mode.

5. Write data into memory.

Vertical Compressed Mode Adjustment

1. Input a monoscope and a cross-hatch signal.
2. Touch up geometry using the data registers listed above for Full mode, however no adjustment should be necessary. Vertical size is 11.8 sq. and Horizontal size is 15.8 sq.
3. Check Full mode for any side effect for any adjustments to Vertical Compressed mode or 1080i HD mode.

SECTION 4
SAFETY RELATED ADJUSTMENTS

⋈ RV8001, RV8002, RV8003 CONFIRMATION METHOD AND HV SERVICE ADJUSTMENTS

The following adjustments should always be performed when replacing the following components which are marked with ◪ on the schematic diagram:

D BOARD: DY, CRT, IC6503, IC8001, IC8003, IC8004, D8004, D8014, R8016, R8021, R8028, R8041, R8042, R8044, R8072, R8073, R8074, R8077, R8078, R8080, R8081, R8082, R8091, R8095

B+ Max Confirmation: Standard: 135.3 ± 1 VCD

Check Condition: AC input voltage : 120 (± 2) VAC at Board Adjustment Process
130 (± 2) VAC at QC
120 (± 2) VAC at Overall Adjustment (After aging)

*Note: If using stabilized power supply, make sure the distortion factor is 3% or less.

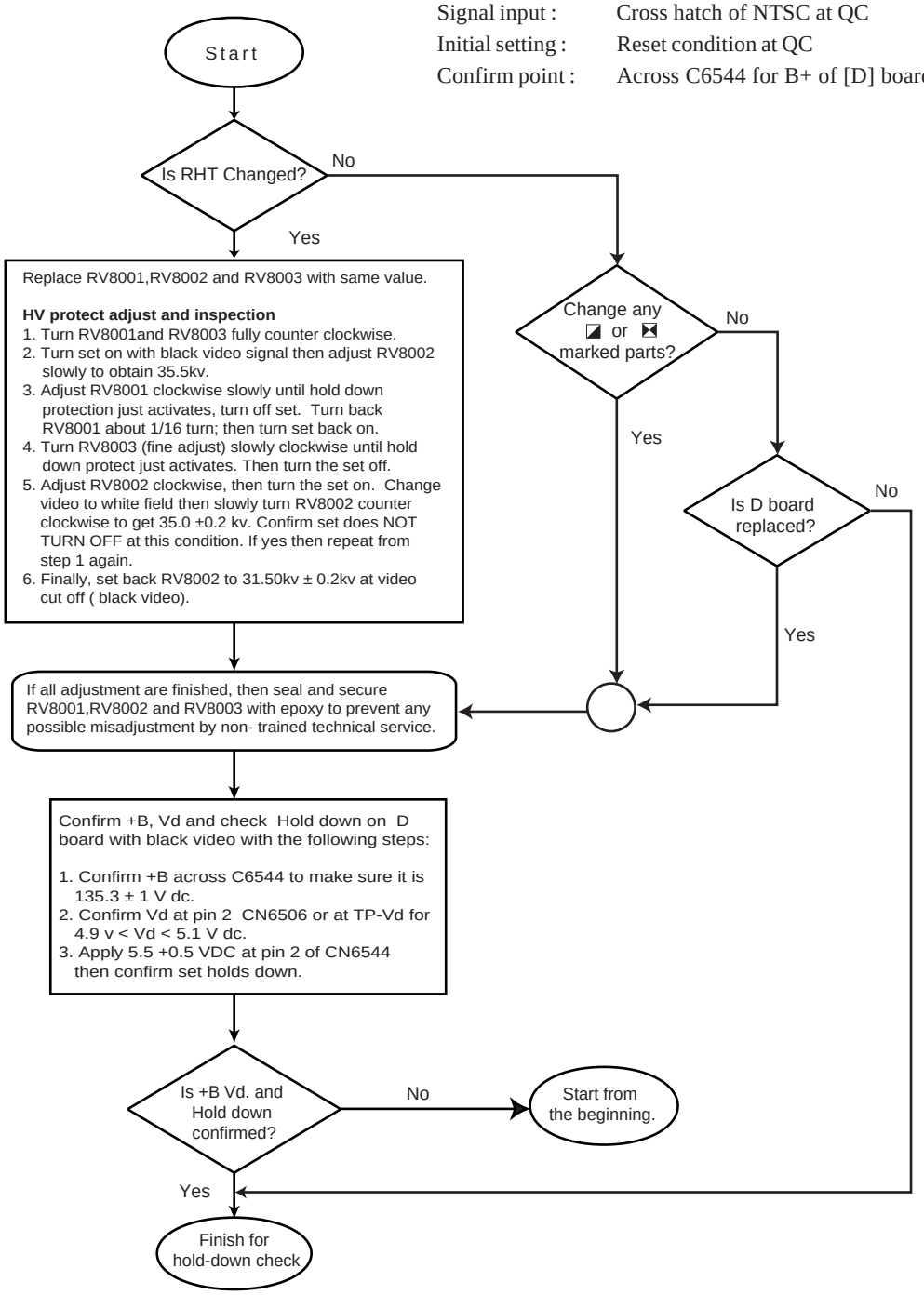
Setting Mode: Full mode

Signal input : Cross hatch of NTSC at QC

Initial setting : Reset condition at QC

Confirm point : Across C6544 for B+ of [D] board.

HV Service Flowchart


Start
Is RHT Changed?
No
Yes
Replace RV8001,RV8002 and RV8003 with same value.
HV protect adjust and inspection
1. Turn RV8001and RV8003 fully counter clockwise.
2. Turn set on with black video signal then adjust RV8002 slowly to obtain 35.5kv.
3. Adjust RV8001 clockwise slowly until hold down protection just activates, turn off set. Turn back RV8001 about 1/16 turn; then turn set back on.
4. Turn RV8003 (fine adjust) slowly clockwise until hold down protect just activates. Then turn the set off.
5. Adjust RV8002 clockwise, then turn the set on. Change video to white field then slowly turn RV8002 counter clockwise to get 35.0 ±0.2 kv. Confirm set does NOT TURN OFF at this condition. If yes then repeat from step 1 again.
6. Finally, set back RV8002 to 31.50kv ± 0.2kv at video cut off (black video).
Change any ◪ or ⋈ marked parts?
No
Yes
Is D board replaced?
No
Yes
If all adjustment are finished, then seal and secure RV8001,RV8002 and RV8003 with epoxy to prevent any possible misadjustment by non- trained technical service.
Confirm +B, Vd and check Hold down on D board with black video with the following steps:
1. Confirm +B across C6544 to make sure it is 135.3 ± 1 V dc.
2. Confirm Vd at pin 2 CN6506 or at TP-Vd for 4.9 v < Vd < 5.1 V dc.
3. Apply 5.5 +0.5 VDC at pin 2 of CN6544 then confirm set holds down.
Is +B Vd. and Hold down confirmed?
No
Start from the beginning.
Yes
Finish for hold-down check

SECTION 5
CIRCUIT ADJUSTMENTS

ELECTRICAL ADJUSTMENTS BY REMOTE COMMANDER

Use the Remote Commander (RM-Y74) to perform the circuit adjustments in this section.

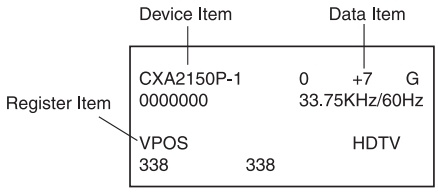
NOTE: Test Equipment Required:

- Pattern generator
- Frequency counter
- Digital multimeter
- Audio oscillator

5-1. SETTING THE SERVICE ADJUSTMENT MODE

1. Standby mode (power off).
2. [Display] ➡ Channel [5] ➡ Sound volume [+] ➡ Power on Remote Commander (press each button within a second).

SERVICE ADJUSTMENT MODE VIEW



Reading the Memory

1. Enter into Service Mode
2. Press [0] on the remote commander.

Adjusting the Picture

1. Enter into Service Mode.
2. Press [2] or [5] on the Remote Commander to select the device item.
2. Press [1] or [4] on the Remote Commander to select an item.
3. Press [3] or [6] on the Remote Commander to change the data.
4. Press [MUTING] then [ENTER] to save into the memory.

Resetting the Data

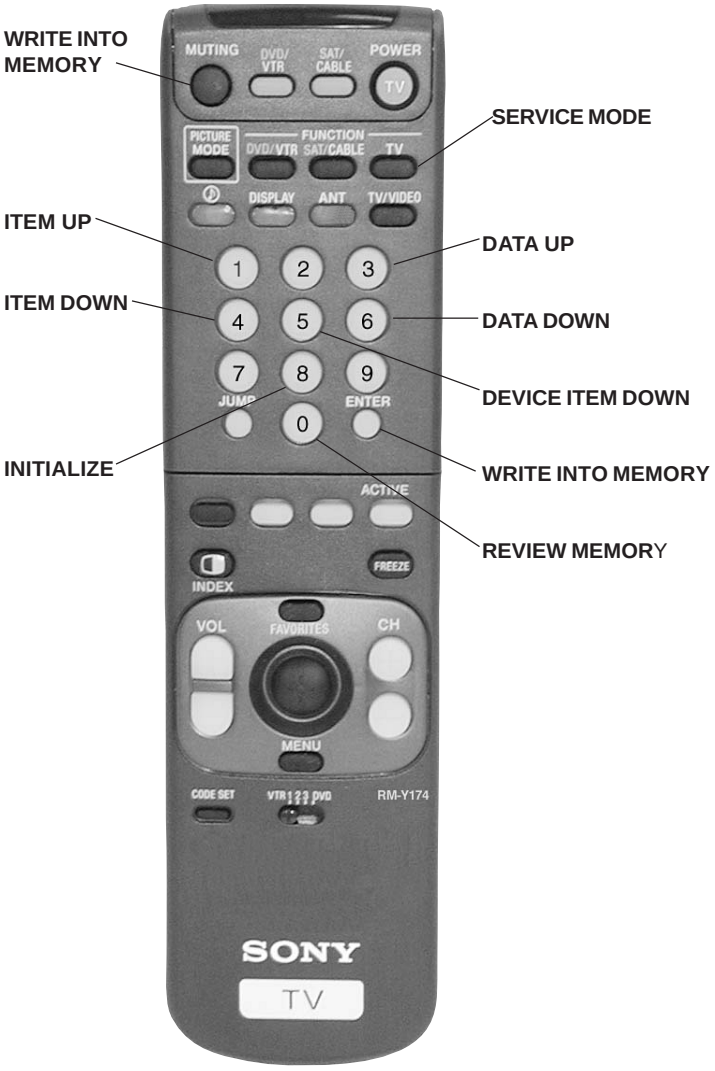
1. Enter into Service Mode.
2. Press [7] [◕] then press [ENTER] on the Remote Commander.

5-2. MEMORY WRITE CONFIRMATION METHOD

1. After adjustment, remove the power plug from the AC outlet, then plug it in again.
2. Turn the power switch ON and set to service mode.
3. Call the adjusted items again to confirm they were adjusted

.

5-3. ADJUSTMENT BUTTONS AND INDICATORS



RM-Y174

5-4. SERVICE DATA LISTS

DX1A Service List ------ Contents				
Service Control Category Number & Name		**Service Control Device Name**	**Service Control Device Reference Number**	**Service Control Device Slave Address & Microprocessor Version**
# 1	**3D-COMB**	µPD64082	IC2004 / BC-board	Slave Address: B8h (Write) & B9h (Read)
# 2-1	**CXA2103-1 (Main)**	CXA2103Q	IC3048 (Main) / B-board	Slave Address: 9Ah
# 2-2	**CXA2103-2 (Sub)**		IC3110 (Sub) / B-board	Slave Address: 9Eh
# 3-1	**CXA2150P-1**	CXA2150Q	IC201 / A-board	Slave Address: 86h
# 3-2	**CXA2150P-2**			
# 3-3	**CXA2150P-3**			
# 3-4	**CXA2150P-4**			
# 4-1	**CXA2150D-1**	CXA2150Q	IC201 / A-board	Slave Address: 86h
# 4-2	**CXA2150D-2**			
# 4-3	**CXA2150D-3**			
# 5	**CXA2151**	CXA2151Q	IC3001 / B-board	Slave Address: 84h
# 6	**D-CONV**	CXA8070P	IC5513 / D-board	Slave Address: DEh
# 7	**CXA2026**	CXA2026AS	IC5511 / D-board	Slave Address: 8Eh
# 8	**AP**	BH3868FS	IC7001 / A-board	Slave Address: 82h
# 9	**TRUS**	NJM2180M	IC4101 / S-board	Controlled through CXA1315M (IC4103 / S-board, Slave Address: 48h)
# 10	**MID1**	CXD9509AQ	IC3408 / B-board	Slave Address: 2Eh { Controlled through MID-X Micro (IC3090 / B-board / 64h) }
# 11	**MID2**	CXD9509AQ	IC3408 / B-board	Slave Address: 2Eh { Controlled through MID-X Micro (IC3090 / B-board / 64h) }
# 12	**MID3**	CXD9509AQ	IC3408 / B-board	Slave Address: 2Eh { Controlled through MID-X Micro (IC3090 / B-board / 64h) }
# 13	**MID5**	CXD9509AQ	IC3408 / B-board	Slave Address: 2Eh { Controlled through MID-X Micro (IC3090 / B-board / 64h) }
# 14	**OSD**	M306V2ME-150FP	IC701 / A-board	System Micro (Version 1.0) with ROM correction (Patch A), Slave Address: 60h
# 15	**SNNR**	µPD64082	IC2004 / BC-board	Slave Address: B8h (Write) & B9h (Read)
		CXA2103Q	IC3048 (Main) / B-board	Slave Address: 9Ah
		CXA2150Q	IC201 / A-board	Slave Address: 86h
# 16	**ID1**	CXD2085M	IC3603 / B-board	Slave Address: 40h
# 17	**CCD&VCHIP**	CXP85840A-039Q	IC3602 (Main) / B-board	CCD&Vchip Micro (Version 2.14), Slave Address: 68h (Main)
			IC3601 (Sub) / B-board	CCD&Vchip Micro (Version 2.14), Slave Address: 6Ch (Sub)
# 18	**OP**	M306V2ME-150FP	IC701 / A-board	System Micro (Version 1.0) with ROM correction (Patch A), Slave Address: 60h
# 19	**ID**	M306V2ME-150FP	IC701 / A-board	System Micro (Version 1.0) with ROM correction (Patch A), Slave Address: 60h

Note:

DX1A System Micro & Software: M306V2ME-150FP (MASK), Software Version 1.0 {with ROM correction (Patch A)}, IC701/A-board (Slave Adress: 60h)

DX1A MID-X Micro & Software: MB94918RPF-G-128-BND (MASK1), Software Version 03/30/00, IC3090/B-board (Slave Address: 64h)
MB94918RPF-G-130-BND (MASK2), Software Version 04/20/00, IC3090/B-board (Slave Address: 64h)

DX1A CCD&Vchip Micro Software: CXP85840A-039Q (MASK), Software Version 2.14, IC3602/B-board (Main/Slave Address: 68h) & IC3601/B-board (Sub/Slave Address: 6Ch)

DX1A SERVICE LIST (#1): 3D-COMB / μPD64082 (Part 1)

Device Name: μPD64082 { 3D-Comb Filter / NEC } / IC2004 (BC-board)
Slave Address: B8h (Write Address) / B9h (Read Address)

Register No	Name	Control Register Function & Link	Data Type	Data Range	Data Initial Setting (32V&36V CRTs)				Comment
					UHF/VHF & CVideo		SVideo		CVideo (CV): CVideo1~4 inputs SVideo (SV): SVideo1~3 inputs
					Standard	Non-standard	Standard	Non-standard	
0	NRMD	Operation mode setting		0~3	0	1	3	3	C: Common data
1	YAPS	Y-output correction (V-aperture compensation & Y-peaking filtering)	C	0~3	3				
2	CLKS	System clock setting	C	0~3	1				
					UHF/VHF & CVideo		SVideo		
					Standard	Non-standard	Standard	Non-standard	
3	NSDS	Selection for standard/non-satndard signal processing		0~3	0	0	0	0	
4	MSS	Selection for inter-frame/inter-line processing	C	0~3	0				
5	KILS	Killer processing selection	C	0~3	1				
6	CDL	C-signal phase with respect to the Y-signal (Fine adjustment at 70 ns/step)	C	0~7	3				
		NRMD Setting-based Control Table for DYCO, DYGA, DCCO, DCGA			NRMD = 0	NRMD = 1	NRMD = 2	NRMD = 3	
7	DYCO	DY detection coring level (Y motion detection coring)		0~15	2	2	2	2	
8	DYGA	DY detection gain (Y motion detection gain)		0~15	10	10	10	10	
9	DCCO	DC detection coring level (C motion detection coring)		0~15	5	5	5	5	
10	DCGA	DC detection gain (C motion detection gain)		0~15	5	5	5	5	
11	YNRL	Frame recersive YNR nonlinear filter limit level	C	0~3	1				
12	CNRL	Frame recersive CNR nonlinear filter limit level	C	0~3	1				
					UHF/VHF	Video1~4	Video5&6		Video1~4: CVideo1~4 & SVideo1~3 inputs Video5&6: YCbCr-480i/480p/1080i inputs
13	VTRH	Hysteresis for Hsync non-standard signal detection (out-of-Hsync intra-field)		0~3	1	1	1		
14	VTRR	Sensitivity for Hsync non-standard signal detection (out-of-Hsync intra-field)		0~3	1	1	1		
15	LDSR	Sensitivity for frame non-standard signal detection (out-of-Hsync inter-frame)		0~3	2	2	2		
		VM&SNNR Setting-based Control Table for VAPG & VAPI **VAPG= VAPG1 - VAPG2**			VAPG1 Data Based on MENU/VM Setting				VAPG2 Data Based on SNNR/Offset-setting
					VM = Off	VM = Low	VM = Mid	VM = High	SNNR = 0 / SNNR = 1 / SNNR = 2 / SNNR = 3
16	VAPG	V-aperture compensation gain		0~7	0	2	3	4	0 / 0 / 0 / 0
17	VAPI	V-aperture compensation convergence point		0~31	4	4	4	4 (32V) / 8 (36V) {Initial Data: 8 (36V)}	
		SNNR Setting-based Control Table for YPFT & YHFG				SNNR Setting (-Offset)			
						SNNR = 0	SNNR = 1	SNNR = 2	SNNR = 3
18	YPFT	Y peaking filter (BPF) center frequency		0~3	0	0	0	0	0
19	YPFG	Y peaking filter (BPF) gain		0~15	7	0	1	2	3

DX1A SERVICE LIST (#1): 3D-COMB / μPD64082 (Part 2)

Device Name: μPD64082 { 3D-Comb Filter / NEC } / IC2004 (BC-board)
Slave Address: B8h (Write Address) / B9h (Read Address)

Register No.	Name	Control Register Function & Link	Data Type	Data Range	Data Initial Setting (32V&36V CRTs)							Comment
		SNNR Setting-based Control Table for YHCO & YHCG			**SNNR = 0**	**SNNR = 1**	**SNNR = 2**	**SNNR = 3**				(Not SNNR Offset Data)
20	**YHCO**	Y output high frequency component coring		0~3	1	1	1	1				YHCO&YHCG settings are sent
21	**YHCG**	Y output high frequency component coring gain		0, 1	0	0	0	0				directly to 3D-Comb device.
22	**HSSL**	Hsync slice level	C	0~15	12	C: Common data						
23	**VSSL**	Vsync slice level	C	0~15	8							
24	**ADCL**	ADC clock delay	C	0~3	3							
		NRMD Setting-based Control Table for D2GA			**NRMD = 0**	**NRMD = 1**	**NRMD = 2**	**NRMD = 3**				
25	**D2GA**	Moving detection gain		0~7	4	4	4	4				
26	**KILR**	Killer detection reference	C	0~15	3							
27	**OP1**	Option1: Selection of comb filter & recursive noise reduction types	C	0, 1	1							
					UHF/VHF	**CVideo1**	**SVideo1**	**CVideo2**	**SVideo2**	**CVideo3**	**SVideo3**	
28	**NR1**	Noise reduction on/off		0, 1	0	0	1	0	1	0	1	
29	**NR2**	SNNR control on/off	C	0, 1	0							
30	**WSL**	Noise level detection data		0~255	1 Byte Data from Read Register WSL							
31	**HPLL**	H-PLL filter (Must be set to 1 when MN signal is input.)	C	0, 1	1							
32	**BPLL**	Burst PLL filter	C	0, 1	1							
33	**FSCF**	Burst extraction gain	C	0, 1	0							
34	**PLLF**	PLL loop gain	C	0, 1	1							
					UHF/VHF	**Video1~4**	**Video5&6**					Video1~4: CVideo1~4 & SVideo1~3 inputs
35	**CC3N**	Selection of a line-comb filter C separation filter characteristic		0, 1	0	0	0					Video5&6: YCbCr-480i/480p/1080i inputs
36	**HDP**	Fine adjustment of the system H-phase	C	0~7	5							
37	**BGPS**	Internal burst gate start position {Gate Start Position from Hsync center = 0.25 x BGPS + 2 (ms)}	C	0~15	4							
38	**BGPW**	Internal burst gate width {Gate Width = 0.25 x BGPW + 0.5 (ms)}	C	0~15	10							
39	**TEST**	Test bit {0: Normal mode, 1: Test mode (forbidden setting)}	C	0, 1	0							
40	**WSC**	Amount of noise detection coring	C	0~3	1							
					UHF/VHF & Video1~4		**Video5&6**	This setting is used for non-standard signals				
41	**LIND**	DRC-M line-doubling setting for non-standard signals	Micro	0~63	0		2	such as Play Station signals.				
42	**PFGO**	(YPFG offset at GR on) --- Not used for DX1A	---	0~7	3	(Not used for DX1A)						

DX1A SERVICE LIST (#2-1): CXA2103-1 {Main}

Device Name: CXA2103Q { NTSC-YCT (Chroma Decoder) / SONY } / IC3048 (B-board)
Slave Address: 9Ah { Main }

Register No & Name		Control Register Function & Link	Data Type	Data Range	Data Initial Setting & [Adjusted Data] (32V&36V CRTs)				Data Initial Setting (32V&36V CRTs)				Note
					UHF/VHF & Video		YCbCr-480i						
					P&P-Left (M)-DRC	P&P-Left (M)-1080i	P&P-Left (M)-DRC	P&P-Left (M)-480i	Video: CVideo1~4 & SVideo1~3 Inputs P&P-Left (M)-1080i&480i: If P&P-Left is 1080i/480p signal, the signal from the main chroma decoder is sent to MID/VDO input. *: Settings not used				
0	**YLEV**	Y-Out gain		0~63	23	27*	28	31*					
1	**CLEV**	Cb&Cr-Out gains		0~63	17	55*	32	31*					
					UHF/VHF	Video							
2	**SCON**	Sub contrast	Adj.	0~15	7 [Adj.]	7 [Adj.]			Adj.: Adjusted data [-2steps]: The adjusted data - 2 steps				
3	**SCOL**	Sub color	Adj.	0~15	7 [Adj.]	7 [Adj.]							
4	**SHUE**	Sub hue	Adj.	0~15	7 [-2steps]	7 [-2steps]							
5	**YDLY**	Y/C delay time		0~3	0	0							
		SNNR Data-related Settings			UHF/VHF	CVideo	SVideo	YCbCr 480i	SNNR=0 (-offset)	SNNR=1 (-offset)	SNNR=2 (-offset)	SNNR=3 (-offset)	
6	**SHAP**	Sharpness		0~15	6	4	4	4	0	1	2	3	
7	**SHF0**	Sharpness f0 selector		0~3	0	0	0	0					
8	**PREO**	Sharpness pre/over-shoot ratio		0~3	3	0	0	0					
9	**BPF0**	Chroma band filter f0 setting		0~3	3	0	0	0					
10	**BPFQ**	Chroma band filter Q setting		0~3	0	3	3	3	CVideo: CVideo1~4 Inputs SVideo: SVideo1~3 Inputs				
11	**BPSW**	Chroma band filter on/off		0, 1	1	0	0	0					
12	**TRAP**	Y bolck chroma trap filter on/off		0, 1	0	0	0	0					
13	**LPF**	YCbCr-Output LPF on/off		0, 1	0	0	0	0					
					UHF/VHF	Video	YCbCr 480i						
14	**AFCG**	AFC Loop Gain (PLL between Hsync & HVCO)		0, 1	1	0	0						
15	**CDMD**	V countdown system mode selector		0~3	3	3	3						
16	**SSMD**	H&Vsync slide level setting		0~3	0	0	0						
17	**HMSK**	Masking of macrovision signal on/off		0, 1	1	1	1						
18	**HALI**	H automatic adjustment on/off		0, 1	0	0	0						
19	**PPHA**	H TIM phase adjustment for video		0~15	7	7	7						
					UHF/VHF & Video		YCbCr-480i						
					P&P-Left (M)-DRC	P&P-Left (M)-1080i	P&P-Left (M)-DRC	P&P-Left (M)-480i					
20	**CBOF**	Cb-Offset1 of Cb IN (Pin34) Cb-Offset2 of EXT Cb (Pin38)		0~(31)~63	31	31*	31	31*	*: Settings not used (31): The center setting = 31				
21	**CROF**	Cr-Offset1 of Cr IN (Pin35) Cr-Offset2 of EXT Cr (Pin39)		0~(31)~63	31	31*	31	31*					
		CXA2150P-4/#13 UBLK Setting-related Controls for ATPD & DCTR			P&P & Favorite				P&P & Favorite				Single
					UBLK = 0	UBLK = 1	UBLK = 2	UBLK = 3	UBLK = 4	UBLK = 5	UBLK = 6	UBLK = 7	UBLK=0~7
22	**ATPD**	Auto-pedestal Inflection Point		0~3	0	1	2	3	1	2	3	2	0
23	**DCTR**	DC Transmission Ratio		0~3	0	1	1	1	2	2	2	3	0

DX1A SERVICE LIST (#2-2): CXA2103-2 {Sub}

Device Name: CXA2103Q { NTSC-YCT (Chroma Decoder) / SONY } / IC3110 (B-board)
Slave Address: 9Eh { Sub }

	Register No & Name	Control Register Function & Link	Data Type	Data Range	Data Initial Setting & [Adjusted Data] (32V&36V CRTs)				Data Initial Setting (32V&36V CRTs)				Note
					UHF/VHF & Video				Video: CVideo1~4 & SVideo1~3 Inputs P&P-Right (S)-DRC: If P&P-Left is 1080i/480p signal, the signal from the sub chroma decoder is switched to DRC path.				
					P&P-Right (S)	P&P-Right (S)-DRC							
0	YLEV	Y-Out gain		0~63	23	22							
1	CLEV	Cb&Cr-Out gains		0~63	18	16							
					UHF/VHF	Video							
2	SCON	Sub contrast	Adj.	0~15	7 [Adj.]	7 [Adj.]							
3	SCOL	Sub color	Adj.	0~15	7 [Adj.]	7 [Adj.]							
4	SHUE	Sub hue	Adj.	0~15	7 [-2steps]	7 [-2steps]			Adj.: Adjusted data [-2steps]: The adjusted data - 2 steps				
5	YDLY	Y/C delay time		0~3	0	0							
		SNNR Data-related Settings			UHF/VHF	CVideo	SVideo		SNNR=0 (-offset)	SNNR=1 (-offset)	SNNR=2 (-offset)	SNNR=3 (-offset)	
6	SHAP	Sharpness		0~15	6	4	4		0	1	2	3	
7	SHF0	Sharpness f0 selector		0~3	0	0	0						
8	PREO	Sharpness pre/over-shoot ratio		0~3	3	0	0						
9	BPF0	Chroma band filter f0 setting		0~3	0	0	0		CVideo: CVideo1~4 Inputs SVideo: SVideo1~3 Inputs				
10	BPFQ	Chroma band filter Q setting		0~3	0	0	0						
11	BPSW	Chroma band filter on/off		0, 1	0	0	0						
12	TRAP	Y bolck chroma trap filter on/off		0, 1	0	0	0						
13	LPF	YCbCr-Output LPF on/off		0, 1	0	0	0						
					UHF/VHF	Video							
14	AFCG	AFC Loop Gain		0, 1	1	0							
15	CDMD	V countdown system mode selector		0~3	3	3							
16	SSMD	H&Vsync slide level setting		0~3	0	0							
17	HMSK	Masking of macrovision signal on/off		0, 1	1	1							
18	HALI	H automatic adjustment on/off		0, 1	0	0							
19	PPHA	H TIM phase adjustment for video		0~15	7	7							
					UHF/VHF & CVideo		YCbCr-480i						
					P&P-Right (S)	P&P-Right (S)-DRC	P&P-Right (S)	P&P-Right (S)-DRC					
20	CBOF	Cb-Offset1 of Cb IN (Pin34) Cb-Offset2 of EXT Cb (Pin38)		0~(31)~63	31	31	31*	31*	*: Settings not used (31): The center setting = 31				
21	CROF	Cr-Offset1 of Cr IN (Pin35) Cr-Offset2 of EXT Cr (Pin39)		0~(31)~63	31	31	31*	31*					
		CXA2150P-4/#13 UBLK Setting-related Controls for ATPD & DCTR			P&P & Favorite				P&P & Favorite				Single
					UBLK = 0	UBLK = 1	UBLK = 2	UBLK = 3	UBLK = 4	UBLK = 5	UBLK = 6	UBLK = 7	UBLK=0~7
22	ATPD	Auto-pedestal Inflection Point		0~3	0	1	2	3	1	2	3	2	0
23	DCTR	DC Transmission Ratio		0~3	0	1	1	1	2	2	2	3	0

DX1A SERVICE LIST (#3-1): CXA2150P-1 {Picture Controls: P1}

Device Name: CXA2150Q { CRT Driver / SONY } / IC201 (A-board)
Slave Address: 86h

Register No	Register Name	Control Register Function & Link	Data Type	Data Range	Data Initial Settings & [Adjusted Data] (32V&36V CRTs)							Comment
					UHF VHF	CV	SV	YCbCr 480i	YCbCr 480p	YCbCr 1080i	P&P	CV: CVideo1~4 SV: SVideo1~3 ( ): Settings at center
0	**SBOT**	Offset for SBRT		0~(7)~15	7	7	7	7	7	7	7	
1	**YOF**	Y_OFFSET: DC-offset for Y signal		0~(7)~15	0	0	0	0	0	0	0	
2	**CBOF**	CB_OFFSET: DC-offset for Cb signal		0~(31)~63	31	31	31	33	30	31	13	
3	**CROF**	CR_OFFSET: DC-offset for Cr signal		0~(31)~63	31	31	31	42	36	31	23	
4	**SBRT**	SUB_BRIGHT: Sub Bright	Adj.	0~63	24 [Adj.]							Adj.: Adjusted data C: Common data
5	**RDRV**	R_DRIVE: R output drive	C	0~63	41							
6	**GDRV**	G_DRIVE: G output drive	Adj.	0~63	36 [Adj.]							
7	**BDRV**	B_DRIVE: B output drive	Adj.	0~63	33 [Adj.]							
8	**RCUT**	R_CUTOFF: R output cutoff	C	0~63	41							
9	**GCUT**	G_CUTOFF: G output cutoff	Adj.	0~63	11 [Adj.]							
10	**BCUT**	B_CUTOFF: B output cutoff	Adj.	0~63	22 [Adj.]							
					Vivid		Standard		Movie		Pro	
11	**WBSW**	WB_SW: White balance offset on/off (Related to UTMP seetings)		0, 1	0 (Cool)		0 (Neutral)		1 (Warm)		0	
12	**SBOF**	Offset for SBRT		0~(63)~127	63		63		63		63	
13	**RDOF**	Offset for RDRV		0~(63)~127	63		63		63**		63	**: The color temporature offset data
14	**GDOF**	Offset for GDRV		0~(63)~127	63		63		66**		63	
15	**BDOF**	Offset for BDRV		0~(63)~127	63		63		76**		63	
16	**RCOF**	Offset for RCUT		0~(63)~127	63		63		63**		63	
17	**GCOF**	Offset for GCUT		0~(63)~127	63		63		66**		63	
18	**BCOF**	Offset for BCUT		0~(63)~127	63		63		78**		63	

Note:

DX1A SERVICE LIST (#3-2): CXA2150P-2 {Picture Controls: P2}

Device Name: CXA2150Q { CRT Driver / SONY } / IC201 (A-board)
Slave Address: 86h

Register No & Name		Control Register Function & Link	Data Type	Data Range	Data Initial Settings (32V&36V CRTs)						Comment
0	**ALBK**	PIC_ON: RGB output including AKB reference pulse on/off (Setting = 0 for power on reset) --- G2 adjustment register setting	C	0, 1	1						C: Common data
1	**RGBS**	R_ON/G_ON/B_ON: R/G/B outputs on/off (AKB reference pusle can not be turned on/off.) (0,1/0,1/0,1)	C	0~7	7						
2	**BLKB**	BLK_BTM: RGB output bottom limit level (Black Limit) (AKB reference pusle DC-voltage)	C	0~3	3						
3	**LIML**	PLIMIT_LEV: Threshold level for excessively high inputs (White Limit)	C	0~3	0						
4	**PABL**	P_ABL: DC-level in RGB output detection for PEAK ABL	C	0~15	15						
5	**SABL**	S_ABL: S_ABL gain	C	0~3	0						
6	**AGNG**	AGING_W/AGING_B: AGING_W/AGING_B modes on/off (Set luminance to 80/01IRE flat-field signal.)	C	0~3 (0,1/0,1)	0						
7	**AKBO**	AKBOFF: Automatic/Manual-Cutoff setting	C	0, 1	0						
					U/VHF & Video1~4	YCbCr 480i	YCbCr 480p	YCbCr 1080i	P&P		Video1~4: CVideo1~4 & SVideo1~3
8	**SYPH**	SYNC_PHASE: Hsync delay with respect to Video (100%: H-period)		0~3	0	0	0	0	0		
9	**CLPH**	CLP_PHASE: Internal clamp pulse phase (100%: H-period)		0~3	3	3	3	3	3		
10	**CLGA**	CLP_GATE: Switch for the gated internal clamp pulse with Hsync input		0, 1	0	0	0	0	0		
11	**JAXS**	JAXIS: Color axis switch		0, 1	0						
12	**BLKO**	BLKO: Blanking switch		0, 1	0						

Note:

DX1A SERVICE LIST (#3-3): CXA2150P-3 {Picture Controls: P3} (Part-1)

Device Name: CXA2150Q { CRT Driver / SONY } / IC201 (A-board)
Slave Address: 86h

Register No & Name		Control Register Function & Link	Data Type	Data Range	Data Initial Settings (32V&36V CRTs) Picture Mode: Vivid							Comment
					UHF VHF	CV	SV	YCbCr 480i	YCbCr 480p	YCbCr 1080i	P&P	
0	**SYSM**	SYSTEM: Signal bandwidth setting		0~3	1	1	1	1	1	2	2	These settings continue to the next page. CV: CVideo1~4 SV: SVideo1~3 C: Common data ( ): Settings at center
1	**UVML**	VM_LEV: VM_OUT level	C	0~3	3							
2	**VMMO**	System Micro pin#40		0, 1	0	0	0	0	0	0	0	
3	**VMCR**	VM_COR: VM_OUT coring level		0~3	3	3	3	3	3	3	3	
4	**VMLM**	VM_LMT: VM_OUT limit level		0~3	3	3	3	3	3	3	3	
5	**VMF0**	VM_F0: VM_f0		0~3	2	2	2	2	2	2	2	
6	**VMDL**	VM_DLY: VM_OUT phase (defined by phase difference from R_OUT)		0~3	3	3	3	3	3	1	3	
7	**SHOF**	Offset for USHP = SHOF x 4		0~3	2	2	2	3	3	0	2	
8	**SHF0**	SHP_F0: Sharpness circuit f0		0, 1	1	1	1	1	1	0	1	
9	**PROV**	PRE/OVER: Y signal pre/over-shoot ratio		0~3	3	3	3	1	3	0	3	
10	**F1LV**	SHP_F1: Sharpness for higher f0 (4.2/5.6 MHz @ NORMAL mode)		0~3	0	3	3	3	3	3	3	
11	**CDSP**	SHP_CD: Sharpness in part of high color saturaion		0~3	3	3	3	3	3	3	3	
12	**LTLV**	LTI_LEV: Luminance transient improvement (LTI)		0~3	3	3	3	3	3	3	3	
13	**LTMD**	LTI_MODE: LTI mode setting		0~3	0	0	0	0	0	0	1	
14	**CTLV**	CTI_LEV: Chrominance transient improvement (CTI)		0~3	0	0	0	0	0	2	0	
15	**CTMD**	CTI_MODE: CTI mode setting		0~3	0	0	0	0	0	0	0	
16	**UBOF**	Offset for UBRT (Picture clarity adjustment)		0~(7)~15	7	7	7	7	7	10	7	
17	**UCOF**	Offset for UCOL = UCOF x 2 (Picture clarity adjustment)		0~3	3	3	3	3	3	0	3	
18	**UHOF**	Offset for UHUE (Picture clarity adjustment)		0~3	0	0	0	0	0	0	0	
19	**MIDE**	MID enhancement setting		0~15	3	3	3	7	11	---	---	

Note:

CXA2150P-3 {Picture Controls: P3} (Part 2)

Register No & Name	Data Initial Settings (32V&36V CRTs) Picture Mode: Standard							Data Initial Settings (32V&36V CRTs) Picture Mode: Movie							Data Initial Settings (32V&36V CRTs) Picture Mode: Pro							Data Initial Settings (32V&36V CRTs)			
	UHF VHF	CV	SV	YCbCr 480i	YCbCr 480p	YCbCr 1080i	P&P	UHF VHF	CV	SV	YCbCr 480i	YCbCr 480p	YCbCr 1080i	P&P	UHF VHF	CV	SV	YCbCr 480i	YCbCr 480p	YCbCr 1080i	P&P	SNNR=0 (Offset)	SNNR=1 (Offset)	SNNR=2 (Offset)	SNNR=3 (Offset)
#0 **SYSM (cont.)**	1	1	1	1	1	2	2	1	1	1	1	1	2	2	1	1	1	1	1	2	2				
#1 **UVML (cont.)**	3							0							0							0	0	0	0
#2 **VMMO (cont.)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
#3 **VMCR (cont.)**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	0	+ 1	+ 2	+ 3
#4 **VMLM (cont.)**	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3				
#5 **VMF0 (cont.)**	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2				
#6 **VMDL (cont.)**	1	3	3	3	3	1	3	1	1	1	1	1	1	3	1	1	1	1	1	1	3				
#7 **SHOF (cont.)**	0	3	3	3	3	0	2	0	3	3	3	3	0	3	0	3	3	3	3	0	3				
#8 **SHF0 (cont.)**	0	1	1	1	1	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	1				
#9 **PROV (cont.)**	3	3	3	1	3	0	3	3	3	3	1	3	0	3	3	3	3	1	3	0	3				
#10 **F1LV (cont.)**	0	3	3	3	3	3	3	0	0	0	0	0	0	3	0	0	0	0	0	0	3	0	- 1	- 2	- 3
#11 **CDSP (cont.)**	3	3	3	3	3	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
#12 **LTLV (cont.)**	2	2	2	2	2	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
#13 **LTMD (cont.)**	1	1	1	1	1	1	1	1	1	1	1	0	0	1	1	1	1	1	0	0	1				
#14 **CTLV (cont.)**	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
#15 **CTMD (cont.)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
#16 **UBOF (cont.)**	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7				
#17 **UCOF (cont.)**	3	3	3	3	3	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
#18 **UHOF (cont.)**	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0				
#19 **MIDE (cont.)**	2	2	2	6	10	---	---	1	1	1	5	9	---	---	0	0	0	4	8	---	---	0	0	0	0

DX1A SERVICE LIST (#3-4): CXA2150P-4 {Picture Controls: P4} (Part-1)

Device Name: CXA2150Q { CRT Driver / SONY } / IC201 (A-board) Slave Address: 86h
Device Name: CXD2085 { ID-1 Decoder / SONY } / IC3603 (B-board) Slave Address: 40h

	Register No & Name	Control Register Function & Link	Data Type	Data Range	Data Initial Settings (32V&36V CRTs)							Comment
					Vivid		Standard		Movie		Pro	Settings for 36V CRTs are used for initial settings.
					32V	36V	32V	36V	32&36V			
0	**UPIC**	PICTURE: Picture		0~63	63	63	42	46	31		31	
1	**UBRT**	BRIGHT: Brightness		0~63	25	22	28	26	28		31	
2	**UCOL**	COLOR: Color		0~63	34	38	33	33	33		31	
3	**UHUE**	HUE: Hue		0~63	31	31	31	31	31		31	
		SNNR Setting-related Controls for USHP										This setting continues to the next page.
4	**USHP**	SHARPNESS: Sharpness		0~63	38	42	44	48	34		31	
5	**UTMP**	Color Temperature (0: Warm, 1: Neutral, 2: Cool)		0~2	2	2	1	1	0		1	
6	**UDCL**	DCOL: Dynamic color setting		0~3	2	2	2	2	2		0	
					Picture Mode: Vivid / Standard / Movie							These settings continue to the next page. Video1~4: CVideo1~4 & SVideo1~3
					UHF/VHF Video1~4		YCbCr 480i	YCbCr 480p	YCbCr 1080i	P&P		
7	**AXIS**	COL_AXIS: Color matrix setting		0~3	3		3	3	3	3		
					Picture Mode: Vivid							
					UHF/VHF Video1~4		YCbCr 480i	YCbCr 480p	YCbCr 1080i	P&P		
8	**UGAM**	GAMMA/GAMMA_L: RGB output GAMMA correction setting ($B_{7\sim6}$) GAMMA_L: Slight GAMMA correction on/off (B_0)		0~7 (0~3/0,1)	5		5	5	5	5		
9	**AGAM**	GAMMA/GAMMA_L (Av Pro user control) --- Void Data		0~7 (0~3/0,1)	---							
		UGAM Setting-related Controls for GSBO, GCOO, GHUO			UGAM = 7	UGAM = 6	UGAM = 5	UGAM = 4	UGAM = 3	UGAM = 2	UGAM = 1	These settings continue to the next page.
10	**GSBO**	Offset for SBRT (8 types of GSBO data based on UGAM values)		0~3	0	0	0	0	0	0	0	
11	**GCOO**	Offset for UCOL		0~3	0	0	0	0	0	0	0	
12	**GHUO**	Offset for UHUE		0~3	0	0	0	0	0	0	0	
					Picture Mode: Vivid							
					UHF/VHF Video1~4		YCbCr 480i	YCbCr 480p	YCbCr 1080i	P&P		
13	**UBLK**	Item # 15~18 pack FI data controls		0~7	7		7	7	7	7		
14	**ABLK**	(Av Pro user control) --- Void Data	---	0~7	0 (Void data)							
		UBLK Setting-related Controls for DCTR										
15	**DCTR**	DC_TRAN: Y signal DC transmission (8 types of DCTR data based on UBLK values)		0~3	3		3	3	3	2		These settings continue to the next page. ( ): Seetings at center
16	**DPIC**	DPIC_LEV: Y signal AUTO PEDESTAL level		0~3	2		2	2	2	1		
17	**DSBO**	Offset for SBRT		0~(7)~15	7		7	7	7	7		
18	**ABLM**	ABL_MODE: ABL mode		0~3	1		1	1	1	1		

DX1A SERVICE LIST (#3-4): CXA2150P-4 {Picture Controls: P4} (Part-2)

Register No & Name	Data Initial Settings (32V&36V CRTs)					Data Initial Settings (32V&36V CRTs)					Data Initial Settings (32V&36V CRTs)											
SNNR Setting (-Offset)	SNNR = 0	SNNR = 1	SNNR = 2	SNNR = 3																		
#4 **USHP (cont.)**	0	1	3	4																		
	Picture Mode: Pro																					
	UHF/VHF Video1~4		YCbCr 480i	YCbCr 480p	YCbCr 1080i	P&P																
#7 **AXIS (Cont.)**	3		3	3	3	3																
	Picture Mode: Standard						Picture Mode: Movie						Picture Mode: Pro									
	U/VHF Video1~4		YCbCr 480i	YCbCr 480p	YCbCr 1080i	P&P	U/VHF	YCbCr 480i	YCbCr 480p	YCbCr 1080i	P&P		U/VHF	YCbCr 480i	YCbCr 480p	YCbCr 1080i	P&P					
#8 **UGAM (Cont.)**	2		2	2	2	2	0	0	0	0	0		0	0	0	0	0					
	UGAM = 0																					
#10 **GSBO (cont.)**	0																					
#11 **GCOO (cont.)**	0																					
#12 **GHUO (cont.)**	0																					
	Picture Mode: Standard						Picture Mode: Movie						Picture Mode: Pro									
	UHF/VHF Video1~4		YCbCr 480i	YCbCr 480p	YCbCr 1080i	P&P	UHF/V	YCbCr 480i	YCbCr 480p	YCbCr 1080i	P&P		UHF/V	YCbCr 480i	YCbCr 480p	YCbCr 1080i	P&P					
#13 **UBLK (Cont.)**	4		4	4	4	4	1	1	1	1	1		0	0	0	0	0					
																		UBLK = 7	UBLK = 6	UBLK = 5	UBLK = 4	UBLK = 3	UBLK = 2	UBLK = 0
#15 **DCTR (Cont.)**	2		2	2	2	2	1	1	1	1	1		1	1	1	1	1	3	2	2	2	1	1 1	1
#16 **DPIC (Cont.)**	1		1	1	1	1	1	1	1	1	1		0	0	0	0	0	2	3	2	1	3	2 1	0
#17 **DSBO (Cont.)**	7		7	7	7	7	7	7	7	7	7		7	7	7	7	7	7	7	7	7	7	7 7	7
#18 **ABLM (Cont.)**	1		1	1	1	1	0	0	0	0	0		0	0	0	0	0	1	0	0	1	0	0 0	0

DX1A SERVICE LIST (#3-4): CXA2150P-4 {Picture Controls: P4} (Part-3)

Register No & Name		Control Register Function & Link	Data Type	Data Range	Data Initial Settings (32V&36V CRTs)					Comment
19	**ABLT**	ABL_TH: ABL currect detection Vth control		0~15	0					
					Full	**Vcomp1**		**Vcomp2**		Full: 480p/960i (4x3) Vcomp1: 480p/960i (16x9) Vcomp2: 1080i (16x9) ( ): Settings at center C: Common data
20	**ABLC**	Control of CXA2026 {0Ch -- DAC0} (*)		0~255	0	66		66		
21	**EPOF**	Offset for UPIC = EPOF x (UPIC/63) (for power save) --- Void Data	---	0~31						
		ID-1 and P&P Modes								
22	**SPOF**	Offset for UPIC = SPOF x (UPIC/64) --- Data Not Used	---	0~31	0 (Not used)					
					UHF/VHF Video1~4	**YCbCr 480i**	**YCbCr 480p**	**YCbCr 1080i**	**P&P**	
23	**SCON**	SUB_CONTRAST: SUB PICTURE		0~15	9	8	11	10	9	
24	**CLOF**	Offset for UCOL		0~(7)~15	8	8	9	7	8	
25	**HUOF**	Offset for UHUE		0~7~15	4	3	3	3	4	
		CXD2085 Service Controls								
26	**IDSW**	Switch for activating the selection in #26 DATA	C	0, 1	0					
					Full	**Vcomp1**		**Vcomp2**		
27	**DATA**	Selection of geometry-forced vertical compression modes	C	0~3	0	1		2		

Note:

DX1A SERVICE LIST (#4-1): CXA2150D-1 {Deflection Controls: D1}

Device Name: CXA2150Q { CRT Driver / SONY } / IC201 (A-board)
Slave Address: 86h

Register No & Name		Control Register Function & Link	Data Type	Data Range	Data Initial Settings & [Adjusted Data] (32V&36V CRTs)			Comment
					Full	Vcomp1	Vcomp2	Full: 480p/960i (4x3) Vcomp1: 480p/960i (16x9) Vcomp2: 1080i (16x9) Adj.: Adjusted data ( ): Settings at center
0	**VPOS**	V_POSITION: Vertical position (V_DRV siganl DC-bias)	Adj.	0~(31)~63	31 [26]			
1	**VSIZ**	V_SIZE: Vertical size (V_DRV signal gain)	Adj.	0~(31)~63	15 [19]			
2	**VLIN**	V_LINEARITY: Vertical linearity (Gain for V_DRV signal secondary component)	Adj.	0~(7)~15	7 [9]			
3	**VSCO**	S_CORRECTION: Vertical S-correction	Adj.	0~(7)~15	7 [8]			
4	**VCEN**	VSAW0_DCH/VSAW0_DCL: Vertical center adjustment VSAW0_DCH: VSAW0 waveform DC component (high 2-bits) VSAW0_DCL: VSAW0 waveform DC component (low 4-bits)	Adj.	0~(31)~63	31 [31]			VCEN-L(Low bit) VCEN-H(High bit)
5	**VPIN**	VSAW0_AMP: Vertical PIN adjustment VSAW0 waveform SAW component amplitude	Adj.	0~(15)~31	15 [15]	15 [Copty1]		[Copy1]: Copy the adjusted data for Full mode.
6	**NSCO**	VSAW1_DC: Rotation	Adj.	0~(7)~15	7 [7or8]			[7or8]: NSCO can be set to 7 or 8. (If not enough, feedback/check with to the DY attachment process.)
7	**HTPZ**	VSAW1_AMP: Horizontal trapezoid	Adj.	0~(15)~31	15 [15]			
8	**ZOOM**	ZOOM_SW: Zoom switch		0, 1	0	0		
9	**APSW**	ASP_SW: Aspect switch		0, 1	1	1	0	
10	**ASPT**	V_ASPECT: Aspect ratio	Adj.	0~63	47	47	47	
11	**SCRL**	V_SCROLL: Vertical scroll	Adj.	0~(31)~63	31	32	32	
12	**UVLN**	UP_VLIN: Upper vertical linearity		0~15	0	0		
13	**LVLN**	LO_VLIN: Lower vertical linearity		0~15	0	0		

Note:

DX1A SERVICE LIST (#4-2): CXA2150D-2 {Deflection Controls: D2}

Device Name: CXA2150Q { CRT Driver / SONY } / IC201 (A-board)
Slave Address: 86h

Register No & Name		Control Register Function & Link	Data Type	Data Range	Data Initial Settings & [Adjusted Data] (32V&36V CRTs)			Comment
					Full	Vcomp1	Vcomp2	Full: 480p/960i (4x3) Vcomp1: 480p/960i (16x9) Vcomp2: 1080i (16x9) [Adj.]: Adjusted data [-6steps]: The adj. Vcomp2 data = the adj. Full data - 6 ( ): Settings at center setting
0	**HCNT**	HC_PARA_DC: Horizontal center	Adj.	0~(31)~63	31 [31]			
1	**HPOS**	H_POSITION: Horizontal position	Adj.	0~(31)~63	31 [31]		31 [-6steps]	
2	**HSIZ**	H_SIZE: Horizontal size	Adj.	0~(31)~63	45 [45]			
3	**SLIN**	MP_PARA_DC: Horizontal S-correction	Adj.	0~15	7 [3]			
4	**MPIN**	MP_PARA_AMP: Horizontal middle pin		0~15	9			
5	**PIN**	PIN_AMP: Horizontal pin	Adj.	0~(31)~63	31 [35]			
6	**UCP**	UP_CPIN: Upper corner pin	Adj.	0~(31)~63	31 [38]			
7	**LCP**	LO_CPIN: Lower corner pin	Adj.	0~(31)~63	31 [42]			
8	**UXCG**	UP_UCG: Upper extra corner pin gain		0~3	2			
9	**LXCG**	LO_UCG: Lower extra corner pin gain		0~3	2			
10	**UXCP**	UP_UCP: Upper extra corner pin position		0~3	2			
11	**LXCP**	LO_UCP: Lower extra corner pin postion		0~3	2			
12	**XCPP**	UC_POL: Extra corner pin polarity		0, 1	0			
13	**PPHA**	PIN_PHASE: Pin phase	Adj.	0~(31)~63	31 [15]			
14	**VANG**	AFC_ANGLE: AFC angle	Adj.	0~(31)~63	31 [31]			
15	**LANG**	HC_PARA_PHASE: Linearity angle	Adj.	0~(31)~63	31 [31]			
16	**VBOW**	AFC_BOW: AFC bow	Adj.	0~(31)~63	31 [31]			
17	**LBOW**	HC_PARA_AMP: Linearity bow	Adj.	0~(31)~63	31 [31]			
18	**CPY1**	Copy Function 1: (Set CPY1=1, then press MUTE + Enter.) Copy all CXA2150D-2 data for Full mode to Vcomp1&2 modes.	Micro	0, 1	0			For engineering design use only

Note:

DX1A SERVICE LIST (#4-3): CXA2150D-3 {Deflection Controls: D3}

Device Name: CXA2150Q { CRT Driver / SONY } / IC201 (A-board)
Slave Address: 86h

Register No & Name		Control Register Function & Link	Data Type	Data Range	Data Initial Settings (32V&36V CRTs)			Comment
					Full	Vcomp1	Vcomp2	Full: 480p/960i (4x3)
0	**HBLK**	HBLK_SW: Horizontal blanking switch		0, 1	1			Vcomp1: 480p/960i (16x9)
1	**LBLK**	LEFT_BLK: Left blanking		0~63	45		50	Vcomp2: 1080i (16x9)
2	**RBLK**	RIGHT_BLK: Right blanking		0~63	24		27	
3	**VBLK**	VBLK_SW: Vertical blanking switch		0, 1	1	1		
4	**TBLK**	UP_BLK: Top blanking		0~(7)~15	1	8	12	( ): Settings at center
5	**BBLK**	LO_BLK: Bottom blanking		0~(7)~15	0	13	13	
6	**VCMP**	V_COMP: Vertical compensation		0~15	0	0	0	
7	**HCMP**	H_COMP: Horizontal compensation		0~15	0	0		
8	**ACMP**	AFC_COMP: AFC compensation		0~7	0	0		
9	**PCMP**	PIN_COMP: Pin compensation		0~7	0	0		
10	**AFCM**	AFC_MODE: AFC loop gain		0~3	3		2	
11	**VFRQ**	V_FREQ: Vertical frequency		0~3	1			
12	**VON**	V_ON: Vertical drive on		0, 1	1			
13	**JUMP**	JMP_SW: Reference pulse jump swtich		0, 1	0	1		
14	**VDJP**	VDRV_SW: Vertical drive jump switch		0, 1	0	0	1	
15	**VDST**	RST_SW: Vertical drive start switch		0, 1	0	0	1	
16	**EWDC**	EW_DC: Pin DC level shift		0, 1	0	0		
17	**AKBT**	AKBTIM: AKB timing		0~31	20	20	10	

Note:

DX1A SERVICE LIST (#5): CXA2151Q

Device Name: CXA2151Q { Component I/F & Sync Seperation / SONY } / IC3001 (B-board)
Slave Address: 84h

Register No & Name		Control Register Function & Link	Data Type	Data Range	Data Initial Settings (32V&36V CRTs)			Comment
					480i (15.75 KHz)	480p (31.50 KHz)	1080i (33.75 KHz)	Video5&6: YCbCr-480i/480p/1080i inputs Sub: 480i input from the sub-channel Full: 480p/960i (4x3) Vcomp1: 480p/960i (16x9) Vcomp2: 1080i (16x9) C: Common data
0	**MTRX**	MAT_OUT: Selection of color matrix conversion types	Micro	0~3	0	0	1	
1	**GAIN**	GAIN_SEL: Selection of output signals for SELYOUT, SELCBOUT, SELCROUT	C	0~3	0			
2	**CBGN**	YGAIN, CBGAIN, CRGAIN: The gain control of SELYOUT, SELCBOUT, & SELCROUT	C	0~15	9			
3	**VTC**	V_TC: Setting of Vsync separation time constant	C	0~3	1			
4	**HWID**	H_WIDTH: Setting of the output pulsewidth of SELHOUT	C	0~3	1			
					Video5	**Video6**	**Sub**	
5	**HSEP**	HSEP_SEL: Setting for the sync separation system		0, 1	0	0	0	
6	**TEST**	TEST: Test mode selection (for device tests)	C	0, 1	0			
7	**FRGB**	The forced RGB selection (for tests) {0: MAT_OUT = MTRX (#0), 1: MAT_OUT = MTRX (#3)}	C	0, 1	0			
					Full	**Vcomp1**	**Vcomp2**	
8	**HMSK**	Hsync masking in vertical retrace		0, 1	1		0	

DX1A SERVICE LIST (#6): D-CONV / CXA8070

Device Name: CXA8070P { DY-Convergence Control / SONY } / IC5513 (D-board)
Slave Address: DEh

Register No & Name		Control Register Function & Link	Data Type	Data Range	Data Initial Settings & [Adjusted Data] (32V&36V CRTs)			Comment
					Full	**Vcomp1**	**Vcomp2**	Full: 480p/960i (4x3) display mode Vcomp1: 480p/960i (16x9) display mode Vcomp2: 1080i (16x9) display mode Adj.: Adjusted data
0	**SBHS**	DC AMP3: DC shift	Adj.	0~63	31 [31]	31 [31]		
1	**YBWU**	VCA9: Upper Y-bow	Adj.	0~63	31 [31]	31 [31]		
2	**YBWL**	VCA10: Lower Y-bow	Adj.	0~63	31 [31]	31 [31]		
3	**RSAP**	DC AMP2: Right H-AMP	Adj.	0~63	31 [31]	31 [31]		
4	**RUBW**	VCA5: Right upper bow	Adj.	0~63	31 [31]	31 [31]		
5	**RLBW**	VCA6: Right lower bow	Adj.	0~63	31 [31]	31 [31]		
6	**LSAP**	DC AMP1: Left H-AMP	Adj.	0~63	31 [31]	31 [31]		
7	**LUBW**	VCA1: Left upper bow	Adj.	0~63	31 [31]	31 [31]		
8	**LLBW**	VCA2: Left lower bow	Adj.	0~63	31 [31]	31 [31]		
9	**CADJ**	DC AMP4: Offset adjustment (ADJ)	Adj.	0~63	31 [48]			
10	**CPY2**	Copy Function 2: (Set CPY2=1, then press MUTE + Enter.) Copy all CXA8070 data for Full mode to Vcomp1&2 modes.	Micro	0, 1	0			For engineering design use only

Note: